USSR

UDC 532.501.34:532.517.2

GAPONOV, S. A., MASLOV, A. A., Novosibirsk

"Numerical and Asymptotic Methods of Solving the Problem of Complete Stabilization of the Boundary Layer"

Moscow, Zhurnal Prikladnoy mekhaniki i tekhnicheskoy fiziki, No 3, 1972, pp 60-64

Abstract: The numerical method proposed by S. A. Gaponov, et al. ["Numerical Solution of the Problem of Complete Stabilization of a Supersonic Boundary Layer," Zhurnal Prikladnoy mekhaniki i tekhnicheskoy fiziki, No 2, 1972] is used to calculate the complete stabilization temperatures of a supersonic boundary layer on a flat plate with the temperature boundary conditions $\theta(0) = 0$ where θ is the amplitude of the temperature disturbance. The results obtained indicate the erroneousness of the conclusion of the paper by E. Reshotko ["Transition Reversal and Tollmien-Schlichting Instability," Phys. Fluids, No 3, Vol 6, 1963] regarding the existence of two complete stabilization domains. The asymptotic method used by Reshotko is analyzed, and it is demonstrated that the two total stabilization domains appear as a result of the fact that the equations used to construct the viscous solutions are inapplicable for low surface temperatures. The analysis results are confirmed by direct numerical integrations.
1/1

USSR UDC 532.501.34:532.517.2

GAPONOV, S. A. and MASLOV, A. A.

"Numerical Solution of the Problem of Full Stabilization of the Boundary Layer"

Novosibirsk, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 2, March-April 1972, pp 39-43

Abstract: A method is proposed for a numerical solution of the problem of full stabilization of a supersonic boundary layer. It is shown that with considerable cooling of the surface, the curve of neutral stability splits into two curves. The temperatures of full stabilization for both neutral curves are calculated. Comparison of the results of the present work with asymptotic calculations shows that above Mach 2, the asymptotic method yields incorrect results. 4 figures. 11 references.

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USSR

UDC 621.378.325

GAPONOV, S.V., PARAMONOV, L.B.

"Laser Pulse Modulation With Retuning Of An Auxiliary Passive Resonator By Means Of Ultrasound"

Izv.VUZ:Radiofizika, Vol XV, No 8, Aug 1972, pp 1262-1264

Abstract: The paper discusses use of the photoelasticity effect for internal modulation of a gaseous laser. The laser resonator used in the experiment consists of two connected interferometers--active and passive. The active resonator, formed by a spherical mirror (r = 1200 mm) and a flat mirror has a length of 800 mm. A gas-discharge tube filled with a mixture of He and Ne is placed in the resonator. The length of the tube is 420 mm. The passive resonator is made in the form of a block of fused quartz glass at the two opposite ends of which mirrors are deposited. At the lower part of the block a piezoelectrical radiator is attached, which excites a resonant ultrasonic wave in the quartz with a frequency of 45.8 kHz, the pressure loop of which coincides with the position of the optical beam and the direction of the stresses with the polarization. The laser radiation at a wavelength of 0.63 micron was registered from the direction of the quartz block with the aid of a FEU[photomultiplier]-22 and a SI-7

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USSR

GAPONOV, S. V. PARANONOV, L. B., Izv. VUZ: Radiofizika, Vol XV, No 8, Aug 1972. pp 1262-1264

oscillograph. In the experiment repetition frequencies up to 5 MHz were obtained with a 20 V amplitude of the control voltage. The power in a pulse was approximately equal to the average power of the continuous radiation originating during substitution of the passive resonator by an output mirror. The percentage modulation did not reach 100 percent. Part of the energy of the modes, the frequencies of which do not coincide with the frequencies of the passive resonator, is radiated and forms a fixed background. In the experiment the fixed background was 6.10^{-2} percent of the pulse power. The authors thank Ya.I.Khanin for valuable comments. 2 fig. 5 ref. Received by editors, 7 Jan 1972.

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USSR

UDC: 621.373.826:62

VYSOTSKIY, V. Z., GAPONOV, S. V., KULIKOVA, N. P., PETROVSKAYA, M. P., SALASHCHENKO, N. N.

"Precision Laser Machining of Foil"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 4, pp 93-94 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D487 by A. L.)

Translation: A method is described for making masks of thin foil (Cu, Nb, Al, Mo, W) 20-60 μm by using a laser. The pulse duration of the laser emission was varied over a range of $3 \cdot 10^{-4}$-$5 \cdot 10^{-8}$ s. Straight-through machining of the masks is done at durations of the order of 10^{-6} s, but the outline of the mask is distorted in this mode due to ejection of a considerable quantity of metal. With a reduction in pulse duration to $5 \cdot 10^{-8}$-10^{-7} s, a layer about 1 μm thick is removed from the surface of the mask during the laser burst, and the outline of the mask is not as distorted.

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GAPONOVA, Yu. G.

SO: JPRS 54514

8 MAY 71

AUDC: 616-036.356:[378.661+14.

INSTRUCTION ON EXPERT MEDICAL EVALUATION OF DISABILITY AT MEDICAL INSTITUTES AND INSTITUTES FOR THE ADVANCED TRAINING OF PHYSICIANS

[Article by Yu.D. Arbatskaya, O.L. Bibikova, Yu.G. Gaponova, Chair of Expert Medical Disability Certification (headed by docent Yu.D. Arbatskaya), Central Institute for the Advanced Training of Physicians (vice-chancellor [illegible] Kovalenko), Moscow, Sovetskoye Zdravookhraneniye, Russian, No 10, 1971, submitted 28 April 1971, pp 45-51]

It is of great national importance to improve the quality of medical evaluation of disability under present conditions. The success of work pertaining to prevention of disease and disability, of rational spending of social insurance funds, and of preserving skilled personnel in industry relies on proper expert evaluation of temporary and lasting disability. However, practice has shown that physicians often make many errors in making expert evaluation of disability. For example, in 1969, 10.2 percent of the patients were referred to VTEK [Medical Commission for Determination of Disability] without justification, and in some oblasts and republics the percentage reached 30.

The achievements of Soviet public health care are closely linked with comprehensive and proper training of students at medical institutes. For this reason, one of the forms of advanced training of physicians at our institute are seminars for the professors and instructors of physicians at our institute have been held as a part of the curriculum since 1965. We know that qualified training of instructors is very important. There are a number of works dealing with organization, methods of conducting, and effectiveness of such seminars (M.D. Kovrigina; M.V. Murav'yev and L.A. Savel'yeva; V.S. Popkov and N.B. Shul'-pina; V.D. Antonovich; V.N. Butrov; N.Ye. Sukhareva; A.P. Spermatsky and A.N. Shelna; M.D. Krasnov et al.; B.Ye. Peterson et al., 1970, and others).

A very special place belongs to seminars and symposiums for instructors at higher medical institutions and institutes for the advanced training of physicians (M.D. Kovrigina, 1968) at our institute. The WHO pays much attention to the training of instructors who teach future medics, so that this was discussed extensively in 1969, in Geneva, at a meeting of WHO representatives (V.N. Butrov, 1970).

USSR

GAPOSHKIN, V. G.

"The Strong Law of Large Numbers for Processes and Sequences Stable in the Broad Sense"

Teoriya Veroyatnostey i yeye Primeneniya [The Theory of Probabilities and Its Applications], 1973, Vol 18, No 2, pp 388-392 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V114)

Translation: If $\{\xi_k(x)\}_{k=0}^{\infty}$ is a sequence, stable in the broad sense, with correlation function R(n), $M\xi_k = 0$, $M\xi_k^2 = 1$, $M\xi_k\xi_{k+n} = R(n)$, then under the condition

$$\lim_{n\to\infty} R(x) = 0, \qquad (1)$$

as we know, the law of large numbers is applicable, i. e. the mean $\sigma_n = \frac{1}{n}\sum_{k=0}^{n-1}\xi_k$ as $n \to \infty$ converge probably (and in the mean square) to zero.

The main result of this article shows that condition (1) is not sufficient for the strong law of large numbers.

Theorem 1. There is a sequence stable in the broad sense $\{\xi_k\}_{k=0}^{\infty}$, for which

$$R(n) = O(\log \log n)^{-2} \to 0,$$

but the mean $\sigma_n(x)$ diverge almost everywhere. From the introduction

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CALCULATION OF NONNUCLEAR SCATTERING IN A BORN APPROXIMATION -U-

AUTHOR-(03)-GAPOTCHENKO, N.I., ALEKSEYEV, I.V., RONOVA, I.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 131-4

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--ELECTRON DIFFRACTION, MOLECULAR STRUCTURE, ELECTRON SCATTERING, COULOMB SCATTERING, ELECTRON SHELL STRUCTURE, CALCULATION, ORGANOZIRCONIUM COMPOUND, ZIRCONIUM CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/2226 STEP NO--UR/0192/70/011/001/0131/1034

CIRC ACCESSION NO--AP0127588

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127588

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE GAS ELECTRON DIFFRACTION STUDIES OF THE STRUCTURE OF MOLS. CONTG. ATOMS WITH A LARGE DIFFERENCE IN AT. NOS. (FOR EXAMPLE, BR SUB3 GEMN(CO)SUB5 OR (C SUB5 H SUB5)SUB2 ZRCL SUB2) IT WAS NECESSARY TO ACCOUNT FOR SCATTERING NOT ONLY ON THE NUCLEI BUT ALSO ON THE ELECTRON SHELLS. THIS INVOLVES SEVERAL EQUATIONS FOR CALCG. THE SCATTERING INTENSITY OF THE MOL. AND AT. COMPONENTS, THE INCOHERENT SCATTERING INTENSITY, AND THE NONNUCLEAR SCATTERING.

FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.43:62.529

DYUBEK, K. L., LEVIN, I. A., and GAPOYAN, D. T., Candidates of Technical Sciences, Moscow Institute of Automotive Engineering; NAMI (Central Scientific Research Institute of Automobiles and Automobile Engines)

"Investigation and Elimination of High-Frequency Vibrations Originating During the Operation of Wheel Brake Mechanisms"

Moscow, Avtomobil'naya Promyshlennost', No 7, Jul 72, pp 16-18

Abstract: In an investigation of causes of the origination of high-frequency vibrations of brake-drum mechanisms, a study was made by NAMI, jointly with the Moscow Institute of Automotive Engineering, of the conditions of the transition of a statically and dynamically stable system, constituting the brake mechanism in the absence of vibrations, into a dynamically unstable system which predetermines the presence of vibrations. A research procedure by means of wire detectors was developed, which permits a quantitative analysis to be made of the character of the curve of specific pressures with respect to the arc length of the brake lining, with its subsequent evaluation by the graphoanalytic method. The obtained experimental data makes it possible to conduct a refined graphoanalytic calculation of the forces acting in the tested brake mechanisms in the presence, and in the absence, of

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DYUBEK, K. L., et al., Avtomobil'naya Promyshlennost', No 7, Jul 72, pp 16-18

high-frequency vibrations, and to determine the causes of origination of the vibrations. Such a calculation was conducted for the front-brake mechanism of the Moskvich automobile, the form of the curve of the specific pressures that were applied upon it (with and without vibrations) being studied experimentally. Means for the elimination of high-frequency vibrations of the brake mechanism are indicated. 3 figures.

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GAPPAROV, M. M.

JPRS 55320
1 May 72

UDC: 616.36-089.873-07:616.36-003.
93-02:615.277.4:582.825.123

MECHANISM OF ACTION OF APHLATOXIN ON REGENERATED HYPERTROPHIC LIVER FOLLOWING PARTIAL HEPATECTOMY

[Article by A.A. Pokrovskiy, M.Ya. Nikolayeva, N.V. Lashneva, N.V. Gapparov, A.I. Shcherbakova, K.A. Korovnikov, N.N. Anenova, Institute of Nutrition, USSR Academy of Medical Sciences, Moscow; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 1, 1972, pp 48-56]

Present conceptions about the mechanism of action of aphlatoxins (a group of highly toxic hepatocarcinogenic metabolites of some species of mold fungus) are reflected in several surveys (Wogan, 1968; Rees; A.A. Pokrovskiy; N.V. Lashneva et al., 1972) and experimental articles (Clifford and Rees, 1967; King and Nicholaen). To date extensive factual material has been accumulated which suggests that one of the mechanisms of toxic action of aphlatoxins (necrosogenic lesion to the liver, on the one hand, and marked hepatocarcinogenic effect, on the other) consists of interaction between aphlatoxins and liver cell DNA (Clifford and Rees, 1969). It was shown that aphlatoxin, like actinomycin D, forms complexes with the DNA molecule through attachment to adenine and guanine amino groups, so that the pentose-phosphate groups remain unaffected. Such interaction leads to impairment of the transcription process (Gallagher and Feigelson), i.e. to impairment of DNA-dependent RNA synthesis, the consequence of this disturbance is inhibition of DNA- and RNA-polymerase synthesis which, in turn, is associated with rapid and visible suppression of hepatic DNA and RNA synthesis. The latter is demonstrable in particular in the case of a regenerated hypertrophic liver (Demcenko et al., 1965, 1966).

Some authors observed injury to the ribosomal system, consisting of breakdown of polysomes and change in their profile (Peng and Wogan, 1968). For this reason one would have expected aphlatoxin to suppress protein synthesis. This was confirmed in in vitro experiments (Smith; Clifford and Rees, 1967). Yet in vivo experiments failed to demonstrate distinct changes in incorporation of labelled precursors in the rat's liver proteins following administration of aphlatoxin (Shank and Wogan). In addition, it was possible to demonstrate aphlatoxin induced blocking of hormonal and adenovirus induction of some enzymes (Wogan and Friedman; Peng and Wogan, 1966).

USSR UDC 666.76.001.4

BATRAKOV, N. A., GAPRINDASHVILI, A. I. and TOMS, O. V., Ural Polytechnic Institute imeni S. M. Kirov

"Potential Applications of Exoelectron Emission for Refractory Studies"

Moscow, Ogneupory, No 5, 1972, pp 50-52

Abstract: This study concerns the exoelectron emission from the surface of Dinas brick for glass-making kilns. The experimental results are correlated with the wetting angles of contact with molten glass. Dinas refractories, while having the lowest wettability and a higher resistance to glass, appears to have a low emission capacity. Exoelectron emission is proposed as a method for reflecting the free surface energy of crystalline substances. The study included experimental impregnation of Dinas brick with solutions of orthophosphates, chromium salts, and other phosphates. The characteristics of the impregnated Dinas brick are cited in tabular form.
(2 illustrations, 1 table, 5 bibliographic references)

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200830009-7"

USSR

UDC 537.533:666.22

KORTOV, V. S., Candidate of Sciences, GAPRINDASHVILI, A. I., RABINOVICH, L. V., Candidate of Sciences

"Exoelectron Emission of Polished Optical Glass"

Optiko Mekhanicheskaya Promyshlennost', No 12, 1972, pp 59-60.

Abstract: Results are presented from a study of the emission of a batch of glass (K108) subjected to deep and ordinary polishing. Exoelectron emission was measured in a vacuum of $5 \cdot 10^{-6}$ torr using a secondary electron multiplier as an electron detector. The pulling electric field was created by holding a grid carrying a positive potential of 10 v at a distance of 1 mm over the surface of the specimen. Measurements indicated electron emission with a peak at about 200°C. The exoelectron emission of polished glasses indicated that mechanical working creates metastable active centers on the surface. The polishing mode influences not only the number of defects formed on the surface but their physical nature as well.

USSR

UDC 621.375.82

GAPRINDASHVILI, KH. I., GVATUA, SH. SH., NUMLADZE, V. V., KHANEVICHEV, V. A., and CHAVCHANIDZE, V. V.

"Threshold, Time,and Spectral Characteristics of a Fiber Laser"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 25-30 (English summary) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D833 from authors' abstract)

Translation: The article studies the time character and spectral composition of radiation in the prethreshold, threshold,and superthreshold states of a fiber laser with the core doped with 6 wt.% Nd_2O_3. In the subthreshold stage, simultaneously with a decrease in the pulse length,there is a narrowing of the radiation spectrum of the active glass fiber to a quantity less than 100 Å. At the threshold pumping energy the stimulated radiation is of a quasicontinuous character and has a pulse length $\Delta\tau = 75 \div 200$ microseconds and a half-width $\Delta\lambda < 0.017$ Å. It is shown experimentally that all the time and spectral stimulated-radiation characteristics known for solid-state lasers are realized relatively simply in a fiber laser. Bibliography with 18 titles.

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USSR G UDC 621.373.029.67.001.5

GAPRINDASHVILI, KH. I., KUKHARSKIY, R. N., LEBEDEVA, YE. A., LEZHAVA, B. S., MUMLADZE, V. V., CHAVCHANIDZE, V. V.

"Coupled Filament Lasers"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 7, 1970, pp 1457-1460

Abstract: Experimental results are presented for the conversion of energy from one passive light conductor to another at a small distance from the first. The minimum length of contact required for maximum transfer of the radiation is determined. The effect of the transfer is used for mutual decrease in the radiation of two-filament lasers (quenching). The case in which a one-filament laser quenches two adjacent ones is investigated.

The possibility of an effect of a one-filament laser on several is also investigated. Experiments performed with three-filament lasers demonstrated that the radiation jumps from one filament to the other two and decreases their radiation intensity.

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USSR

GAPRINDASHVILI, KH. I., et al, Radiotekhnika i Elektronika, Vol 15, No 7, 1970, pp 1457-1460

The experimental results are presented in a table including a case in which laser I extinguished lasers II and III. The maximum extinguishing coefficients obtained for two- and three-filament lasers turn out to be identical and equal to 0.50-0.65. The extinguishing coefficient depends on the radiation energy of the extinguishing laser and increases with an increase in it, for the cases of both two and three filaments.

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1/2 006 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--POLAROGRAPHIC BEHAVIOR OF GALLIUM, III, IN A NONAQUEOUS MEDIUM -U-

AUTHOR-(03)-GAPRINDASHVILI, V.N., GVINEPADZE, D.S., TSVENIASHVILI, V.SH.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(1), 85-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GALLIUM ELECTROLYTE, POLAROGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1398 STEP NO--UR/0251/70/057/001/0085/0088

CIRC ACCESSION NO--AP0126936

UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0126936

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REDN. OF GA WAS STUDIED IN ITS HCONME SUB2 SOLNS. WITH LICLO SUB4, ME SUB4 NI, AND PHME SUB3 NI AS AUXILIARY ELECTROLYTES. AT 10 PRIME NEGATIVE4 -5 TIMES 10 PRIME NEGATIVE3 M GA, THE HEIGHT OF THE REDN. WAVE WAS DIRECTLY PROPORTIONAL TO THE GA CONCN. THE HALF WAVE POTENTIAL WAS NOT AFFECTED BY THE CONCN. BUT WAS AFFECTED BY THE NATURE OF THE IONS OF THE AUXILIARY ELECTROLYTES. AT A GA CONCN. OF 10 PRIME NEGATIVE3 M, THE HALF WAVE POTENTIAL WAS 1.12 V. THE EFFECT OF TEMP. ON THE LIMITING CURRENT AT 20-70DEGREES WAS PLUS 1.4PERCENT-DEGREE. THE REDN. OF GA IN HCONME SUB2 WAS A 1-STEP PROCESS ACCORDING TO: GA PRIME3 POSITIVE PLUS 3E YEILDS GA. FACILITY: INST. NEORG. KHIM. ELEKTROKHIM., TBILISI, USSR.

UNCLASSIFIED

USSR

UDC: 532

PROKHORENKO, V. Ya., GAPONYN, B. M.

"Concerning the Relation Between Thermal Effects, Structure, and Thermoelectric Coefficients"

Visnyk L'viv. un-tu. Ser. fiz. (L'vov University Herald. Physics Series), 1971, vyp. 6(14), pp 63-70, 110 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Ye156)

Translation: An empirical relation is found between entropy and the change in resistance, thermoelectromotive force, and coordination number as metals are melted. Verifications for Pb, Zn, Bi, Ga, Cu, Ag, Au, and In were satisfactory. The thermoelectromotive force is sensitive to the structural effect of microstratification. It is shown that the method of thermoelectromotive force is suitable for plotting phase diagrams for systems with segregation in the molten state. Bibliography of 13 titles. Authors' abstract.

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USSR

UDC 632.95

KORNOUKHOVA, M. V., LOMAKINA, V. I., MANDEL'BAUM, Ya. A., GAR, K. A., GOLYSHIN, N. M., BOKAREV, Ye. M., FEDOSEYENKO, L. G., and BODROVA, M. R.

"Reaction of Thiophosphate Hydrazides with Sulfochlorides"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 194-199 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N567 by L. V. Razvodovskaya)

Translation: Compounds with the general formula $R^1(RO)P(S)NHNHSO_2R^2$ (I) and $R^3XP(S)(NHNHSO_2R^2)_2$ (II) (R = alkyl, R^1 = aryloxy, NHR, NR_2, R^2 2 R^3 = alkyl, aryl, X = O or NH) are obtained from the reaction of $R^1(RO)P(S)NHNH_2$ (III) or $R^3XP(S)(NHNH_2)_2$ (IV) with $ClSO_2R^2$. Examples. (1) 0.03 mole of Et_3N solution in 30 ml of C_6H_6 at 20° is added to 0.03 mole of III (R = Et, R^1 = PhO) and 0.03 mole of Et_3N in 70 ml of C_6H_6. The mixture is mixed for 5 hours at 35 to 40° and the sediment is filtered off. The filtrate is washed, dried, and the solvent distilled off to obtain I (R = R^2 = Et, R^1 = PhO, yield 66%, melting point 91-3°. I is obtained in a similar fashion (R, R^1, yield in %, melting point in °C or $n^{25}D$ and d_4^{25} are given): Me, iso-PrNH, Me, 70, 1.5204, 1.2964;

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USSR

KORNOUKHOVA, M. V., et al., Khim. sredstva zashchity rast, No 2, 1972, pp 194-199

Et, iso-PrNH, Ph, 56, 117-8; Et, iso-BuNH, Me, 84, 1.505, 1.1974; Ph, iso-PrNH, Et, 68, 66-8; Et, Me_2N, PhMe, 30, 78-80; Et, Et_2N, Et, 50, 1.5148, 1.2035; Et, Et_2N, PhMe, 55, 1.5350, 1.1756; Et, PhO, Ph, 55, 72-4. (2) 0.05 mole of $PhSO_2Cl$ at 20° is added to a solution of 0.05 mole of IV (R^3X = PhO) and 0.05 mole of Et_3N in 100 ml of alcohol. The mixture is mixed for 6 hours at 20° and 8 hours at 60-70°; the alcohol is distilled off in part. The sediment is filtered off and the filtrate evaporated to obtain II (R^2=R^3=Ph, X = O), yield 56%, melting point 168-70°. II is obtained in a similar fashion (R^3X, R^2 yield in %, melting point in °C are given): EtO, Et, 50, 158-60, EtO, Ph, 30, 102-5; PhO, Me, 45, 173-5; PhNH, Me, 46, -. I and II have fungicidal and weak contact insecticidal activity.

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USSR

UDC 632.95

GAR, K. A., UNTERBERGER, V. K., BEZUGLIY, S. F., LUKANINA, V. S., AND VOLKOV, V. N., All-Union Scientific Studies Institute of Chemical Compounds for the Protection of Plants

"Insecticide Formula"

Author's Certificate No 213452, filed 4 Apr 66, published 2 Jun 72 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8N480P by T. A. Belyayeva)

Translation: The insecticide trichloforl-5 contains from 4-15% trichlorometaphos-3 (I), 85-96% high purity unfiltered mineral oil, and 0-6% of the emulsifier OP-4. For example, 92% of the light unfiltered oil having an unsulfornated residue of 93%, 5% of (I), and 3% OP-4. The order of the relative effectiveness of the oleophoses is as follows -- olemetaphos, trichlorol-5, and preparation No 30 -- relative to the wintering phase of the California scale insect. Trichlorol -5 in a 2% concentration showed a mortality of 92.4% of the pests.

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(4)

USSR

NEL'NIKOV, N. N., MANDEL'BAUM, YA. A., ABRAMOVA, G. I., SHIRKOVA, N. S., GAR, K. A., BOKAREV, YE. N., ORLOVA, V. I., and MAKEYEVA, V. F.

"Synthesis and Pesticidal Activity of Dithiophosphoric Acid Amides"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protective Agents -- collection of works), No 2, Moscow, 1972, pp 210-214 (from RZh-Khimiya, No 19, Oct 73, Abstract No 19N479)

Translation: Studying the relationship of structure-pesticidal activity a series of amides $R'R''N(ClCH_2CH_2O)P(S)SR'''$ (I) has been synthesized and evaluated (R=alkyl; R'=H or alkyl; R'''=alkyl, Ph, substituted phenyl) the compounds showing insecticidal and acaricidal activity. The following I have been obtained (R', R'', R''', d_4^{20}, n_D^{20}, m.p. °C being reported):

Me, H, Pr, 1.2210, 1.5450, -; Et, H, Pr, 1.1956, 1,5380, -; Pr, H, Pr, 1.1660, 1.5300, -; iso-Pr, H, Pr, 1.1735, 1.5318, -; Bu, H, Pr, 1.1485, 1.5320, -; iso-Bu, H, Pr, 1.1505, 1.5280, -; Me, H, Bu, 1,2018, 1.5410, -; Et, H, BU, 1.1795, 1.5360, -; Pr, H, Bu, 1.1500,

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(4)

USSR

MEL'NIKOV, et al., V sb. Khim sredstva zashchity rast., No 2, Moscow, 1972, pp 210-214

1.5285, -; iso-Pr, H, Bu, 1.1295, 1.5310, -; Bu, H, Bu, 1.1285, 1.5280, -; iso-Bu, H, Bu, 1.1285, 1.1545, -; Me, Me, Pr, 1.2123, 1.5450, -; Et, Et, Pr, 1.1313, 1.5180, -; Pr, Pr, Pr, 1.0831, 1.5040, -; Bu, Bu, Pr, 1.0601, 1.5031, -; Me, Me, iso-Pr, 1.1900, 1.5325, -; Et, Et, iso-Pr, 1.1233, 1.5160, -; Pr, Pr, iso-Pr, 1.0910, 1.5080, -; Bu, Bu, iso-Pr, 1.0732, 1.5090, -; Me, Me, Bu, 1.2133, 1.5500, -; Et, Et, Bu, 1.1123, 1.5160, -; Pr, Pr, Bu, 1.0827, 1.5160, -; Bu, Bu, Bu, 1.0581, 1.5060, -; Me, H, Ph, -, -, 124; Et, H, Ph, -, -, 65; Pr, H, Ph, -, -, 60; iso-Pr, H, Ph, -, -, 74-5; Bu, H, Ph, -, -, 45; iso-Bu, H, Ph, -, -, 78-9; Me, H, C_6H_4Cl-4, -, -, 118-9; Et, H, C_6H_4Cl-4, -, -,

(4)

USSR

MEL'NIKOV, et al., V sv. Khim sredstva zashchity rast., No 2, Moscow, 1972 pp 210-214

71-2; Pr, H, C_6H_4Cl-4, -, -, 59-60; iso-Pr, H, C_6H_4Cl-4, -, -, 60-1; Bu, H, C_6H_4Cl-4, -, -, 60-1; iso-Bu, H, C_6H_4Cl-4, -, -, 61-62; Me, Me, C_6H_4Cl-4, 1.3632, 1.6081, -; Et, Et, C_6H_4Cl-4, 1.2700, 1.5705, -; Pr, Pr, C_6H_4Cl-4, 1.2261, 1.5565, -; Bu, Bu, C_6H_4Cl-4, 1.1821, 1.5530, -; Me, Me, Ph, 1.2561, 1.5720, -; Et, Et, Ph, 1.2223, 1.5675, -; Pr, Pr, Ph, 1.1700, 1.5520, -; Bu, Bu, Ph, 1.1610, 1.5500, -; Me, Me, $C_6H_3Cl_2$-2,5, -, -, 74-75; Et, Et, $C_6H_3Cl_2$-2,5, -, -, 70-1; Pr, Pr, $C_6H_3Cl_2$-2,5, -, -, 66-7; Bu, Bu, $C_6H_3Cl_2$-2,5, 1.2763, 1.5660, -; Me, H, Ph, -, -, 74-5; Et, H, Ph, -, -, 73-4; Pr, H, Ph, -, -, 64-5; iso-Pr, H, Ph, -,

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(4)

USSR

MEL'NIKOV, N. N., et al., V sb. Khim. sredstva zashchity rast., No 2, Moscow, 1972, pp 210-214

-, 69-70; Bu, H, Ph, -, -, 59-60; iso-Bu, H, Ph, -, -, 83-4; Me, Me, Ph, -, -, 78-9; Et, Et, C_6H_5, -, -, 61-3; Bu, Bu, C_6Cl_5, -, -, 40-1; Me, H, $C_6H_4NO_2$-4, -, -, 69-70; Et, H, $C_6H_4NO_2$-4, -, -, 65-6; Pr, H, $C_6H_4NO_2$-4, -, -, 62-3; iso-Pr, H, $C_6H_4NO_2$-4, -, -, 60-1; Bu, H, $C_6H_4NO_2$-4, -, -, 62-3; iso-Bu, H, $C_6H_4NO_2$-4, -, -, 60-2; Me, Me, $C_6H_4NO_2$-4, -, -, 73-4; Et, Et, $C_6H_4NO_2$-4, -, -, 70-1; Pr, Pr, $C_6H_4NO_2$-4, -, -, 69-70; Bu, Bu, $C_6H_4NO_2$-4, -, -, 65-6.

4/4

USSR UDC 632.95

ITSKOVA, A. L., [redacted], MANDEL'BAUM, YA. A., FETISOVA, V. F., and ORLOVA, V. I.

"An Arcaricide"

USSR Authors' Certificate No 267244, Cl. A 01 n 9/36; A 01 n 9/14, filed 16 Sep 68, published 17 Jan 72 (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14N468 by T. A. Belyayeva)

Translation: For the control of spider mites the authors suggest application of a thiophosphate with the general formula $(RO)(R'R''N)P(O)SCH_2COH(Et)SO_2Me$ (I) (R = Me or Et; R' = Me, Et, Pr; R" = H, Me, Et). Results of I tests on spider mite specimens are presented.

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USSR

UDC 632.95

POSLAYSKIY, YU. M., GAR, K. A., LUKANINA, V. S., and BEZUGLYY, S. F.

"Polydofen"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 34-42 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N453 by T. A. Belyayeva)

Translation: Polydofen (I) is an insecticidal preparation containing 40% polychlorocamphene, 20% DDT, solvents and an emulsifier. Results are given for tests of I and other combined preparations of DDT with chlorinated terpenes in various regions of the USSR during aerial and tractor spraying of cotton. Timing, consumption rates and application conditions are given for I on cotton against the bollworm.

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USSR UDC 632.95

[redacted], KOGAN, L. M., POKROVSKIY, YE. A., KHOKHRYAKOVA, V. S., and BURMAKIN, N. M.

"Hexachlorobutadiene as an Antiphylloxera Vineyard Soil Fumigation Agent"

V sb. Khim. sredstva zashchita rast. (Chemical Plant Protectants -- collection of works, Vyp 1, Moscow, 1970, pp 42-56 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N452 by T. A. Belyayeva)

Translation: In a zone of total and partial phylloxera infection the use of hexachlorobutadiene (I) should retain its importance for many years to come. The article recommends consumption rates for I and a technique for using it, and shows the effect of I on the grape plant, soil microflora and microfauna and the effectiveness of a granulated preparation of I against phylloxera. An estimate is given of the toxicity of I for warm-blooded animals.

1/1

USSR UDC 632.951.911.2

GAR, K. A., All-Union Scientific Research Institute of Chemical Plant Protectants

"Estimating the Adherence of Powdered Pesticides on Plant Leaves"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 1, Jan 70, pp 29-31

Abstract: The article describes laboratory methods devised by the author for determining the adherence of powdered preparations on various plant surfaces, with allowance for the form of the preparation used (water suspensions, dusts), meteorological factors under various modes of application (dusting, spraying) and plant surface peculiarities. Z. Z. GOLUBEVA took part in the calculations.

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USSR UDC 591.145.3

GAR, K. A., KHEYMAN, V. A., and POPOVA, N. A., All Union Scientific Research Institute of Chemical Means of Plant Protection

"Biochemical Mechanisms of the Resistance of Insects to DDT at Elevated Temperatures"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 5, 1971, pp 1241-1244

Abstract: DDT is toxic to insects because it inhibits oxidative phosphorylation and the formation of ATP. However, DDT toxicity decreases when temperature rises above 31.4°C. Some investigators believe that at higher temperatures DDT is metabolized and detoxified at a faster rate. This study was performed to determine the degree of oxidative phosphorylation inhibition after addition of DDT and other insecticides. The tests were done in the Warburg apparatus on the mitochondria of weevils (B. punctiventris) after the insects had been incubated, without insecticides, at +17°C (cold) and +27°C (warm) for various

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USSR

GAR, K. A., KHEYMAN, V. A. and POPOVA, N. A., Doklady Akademii Nauk SSSR, Vol 196, No 5, 1971, pp 1241-1244

periods. After addition of DDT, phosphorylation was inhibited 20% in "warm" weevils and 90% in "cold" weevils. Oxidation was accelerated by a factor of 1.5 in both preparations. Chromatography revealed that all DDT was absorbed by the mitochondria and that there were no DDT metabolites in either group. In the presence of other insecticides, the differences were less pronounced or absent. It was concluded that the preceding incubation at different temperatures changed the susceptibility of mitochondria to DDT.

1/2 013 UNCLASSIFIED PROCESSING DATE--[illegible]

TITLE--EVALUATION OF THE ADHERENCE OF POWDERED PESTICIDES TO PLANT LEAVES -U-

AUTHOR--GAR, K.A.

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COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(1) 29-31

DATE PUBLISHED-------70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PESTICIDE, CEREAL CROP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1169 STEP NO--UR/0194/70/008/001/0029/[illegible]

CIRC ACCESSION NO--AP0109277

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0109277

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LAB. METHODS WERE DEVELOPED INVOLVING DETN. OF THE ADHERENCE OF POWDERS TO DIFFERENT SURFACES AS WELL AS DETN. OF THE WETTABILITY FACTOR FOR SOLNS. WHEN THE SURFACE WETTABILITY IS SATISFACTORY, THE WATER DROP SPREADS RAPIDLY AND WETTABILITY FACTOR VALUES ARE CLOSE TO 1. THE LOWEST WETTABILITY WAS SHOWN BY LEAVES OF CEREALS AND OLD CABBAGES. INVESTIGATION OF POWDERS ADHERENCE WAS MORE DIFFICULT BECAUSE A NO. OF METEOROL. FACTORS HAD TO BE CONSIDERED. ARTIFICIAL SURFACES, SUCH AS GLASS, CELLULOSE AND CELLULOSE WITH SILICONE LACQUER FG 9, EXHIBITING PROPERTIES SIMILAR TO THOSE OF LEAVES WERE USED.

USSR UDC 632.95

SEMENOVA, S. A., SIFOROVA, T. A., GAR, K. A., MANDEL'BAUM, Ya. A., ITSKOVA, A. L., FETISOVA, V. F., NIKOLAYEVA, T. A., and SELEZNEVA, V. P.

"Acaricide"

USSR Author's Certificate No 265611, filed 3 Jul 68, published 7 Apr 72 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom (I, L-S), No 1(II), 1973, Abstract No 1N450P by T. A. Belyayeva)

Translation: Compound of a general formula $(RO)(R'O)P(X)SCH_2CON(R'')SO_2(R''')$ (where R, R', R'', R''' = C_1 - C_4-alkyl, X = O or S) is suggested for use as acaracide. Experimental data are presented on its aqueous emulsions under laboratory conditions and the duration of its protective effect.

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BAR T. K.

Acc. Nr: AP0049132 Abstracting Service: CHEMICAL ABST. 5/10 Ref. Code: 4R0079

100852j New reactions of tribromogermane. Mironov, V. F.; Berliner, E. M.; Gar, T. K.; Ponomareva, E. K. (USSR). *Zh. Obshch. Khim.* 1970, 40(1), 109–15 (Russ). Mixing 6.75 g acrylic acid with 58.4 g $HGeBr_3$, Et_2O at −10° and warming to room temp. gave 38% $Br_3Ge(CH_2)_2CO_2H$, m. 100–1.5°, which with PBr_3 in 3 hr at 90° gave the acyl bromide, b_2 113°, also prepd. from $H_2C{:}CHCOCl$ and $HGeBr_3.Et_2O$ in 14% yield. $HGeBr_3.Et_2O$ stored 2 days and treated with acrylic acid as above gave 41% $Br_3Ge(CH_2)_2CO_2Et$, b_2 110°, d^{20} 2.1433, n_D^{20} 1.5512. Similar reaction with CH_2O gas gave 39% Br_3GeCH_2OEt, b_2 71.5–2.5°, 2.2922, 1.5690. If the reaction mixt. is treated with MeMgCl there is formed 17% Me_3GeCH_2OH, b_{12} 56–8.5°, —, 1.4468, while ethylene oxide gave $Me_3Ge(CH_2)_2OH$, b_{13} 48–9.5°, —, 1.4881. Reaction of AcH and $HGeBr_3$, followed by MeMgCl gave 31% $Me_3GeCHMeOCHMeGeMe_3$, while crude $HGeBr_3$, treated with thiophene at −10°, gave 45% bis(tribromogermanyl)tetrahydrothiophene, m. 76.5–9.5°. Also reported are: $Br_3GeCHRCHR^1CO_2H$ (R and R^1, and m.p. shown): H, Me, 75–6.5°; Me, H, 73–4°; CO_2H, H, 160.5–1.5°; Ph, H, 122.5–3.5°. $HC{:}CCO_2H$ and $GeHBr_3$ gave $Br_3GeCH_2CH(CO_2H)GeBr_3$, m. 135–7°. $Br_3Ge(CH_2)COCl$ could not be isolated by distn. owing to Cl-Br exchange, but blowing the crude product with HBr gave the acyl bromide.

G. M. Kosolapoff

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REEL/FRAME

USSR UDC 615.322

DERBENTSEVA, N. O., MISHENKOVA, Ye. L., and GARAGULYA, O. D., Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR

"Comparison of the Antibacterial and Antivirus Properties of the Tannins of Imanine"

Kiev, Mikrobiologichniy Zhurnal, Vol 35, No 4, Jul/Aug 73, pp 485-488

Abstract: The antibiotic imanine, which is extracted from Hypericum perforatum L., exhibits activity against both viruses and Gram-positive bacteria. The imanine tannins were separated by a method described in earlier work by the authors (Mikrobiol. Zh., 6, 33, 1971). It was shown that the activity of the isolated fractions against Staph. aureus 209 did not correspond to their activity against the tobacco mosaic virus. The presence of catechins and polyoxyflavonoids in the fractions with antivirus activity was confirmed.

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1/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--KINETICS AND MECHANISM OF THE ISOMERIZATION OF N,PENTANE ON THE HYDROGEN FORM OF MORDENITE -U-

AUTHOR-(03)-MINACHEV, KH.M., GARANIN, V.I., KHARLAMOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM, 1970, (4), 835-40

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REACTION KINETICS, CHEMICAL REACTION MECHANISM, ISOMERIZATION, PENTANE, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1016 STEP NO--UR/0062/70/000/004/0835/0840

CIRC ACCESSION NO--AP0134728

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134728

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION, STUDIED IN A FLOW REACTOR IN H ATM., SHOWED DIRECT PROPORTIONALITY BETWEEN THE RATE OF ISOMERIZATION OF PENTANE AND ITS PARTIAL PRESSURE. THE RATE WAS INVERSELY PROPORTIONAL TO H PRESSURE, AND THE APPARENT ACTIVATION ENERGY IS 31 KCAL-MOLE IN THE 210-300DEGREES RANGE. THE REACTION EVIDENTLY PROCEEDS BY A CARBONIUM ION MECHANISM. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 8.74

PAPERNOV, A. A., GARANINA, O. I.

"Multiple Computer Computation System with a Common Memory Field"

V sb. Vychisl. sistemy (Computation Systems--collection of works), Vyp. 48, Novosibirsk, 1971, pp 48-63 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V417)

Translation: A study was made of the structure of a multiprogram multiprocessor computation system with a common information field and a multilevel virtual memory. The system is designed for joint processing of a set of problems some of which are interrelated and process data from different external sources. The dispatcher program included in any processor of the system organizes and controls the operation of the entire computation system. The dispatcher must enter into the organization of exchange between the different memory levels, consideration of utilization of the ready-access memory and its dynamic distribution, the resolution of conflicting situations during exchange with external sources and also reaction to breakdowns and failures of the equipment.

During the process of developing the computation system, the operation of the dispatcher was simulated and the output capacity of the system as a whole was evaluated. By the results of the simulation of the operation of the dispatcher 17% of the output capacity of a four-processor system is expended on the dispatcher functioning. It is also demonstrated that as a result of interference of the requests for common system equipment, the total output capacity of the computation system decreases by 17.3%.

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USSR UDC 678.06-419.8:677.521.01:53

KIRILLOV, V. N., SOBOLEV, I. V., YEFIMOV, V. A., and GARANINA, S. D.

"Thermophysical Properties of Fiberglass With Silicon Filler"

Moscow, Plasticheskiye Massy, No 2, 1973, pp 54-57

Abstract: The effect of thermal treatment for silicon fiber on its properties and the thermophysical properties of the fiberglass based on a silicon filler and various binders was studied. The silicon fiber KT-11 was treated at 300, 600 and 800°C. Fiberglass materials were prepared from phenylfurfuryl, phenylformaldehyde, organosilicon, and modified epoxy binders. Experimental results show that with increased temperature of the fiber treatment the amount of moisture on the surface of fibers is sharply decreased. In fiberglass materials with large interconnected pores the moisture loss occur in all layers of the filler; in fiberglass of low porosity these processes occur only on the surface layers. Thus during the thermal treatment of silicon fiber its properties are altered in line with its structural changes. Thermophysical properties of fiberglass filled with silicon fiber KT-11 depend to a large degree on the treatment temperature of the filler.
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1/2 021 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--INTERNAL STRESSES AND DIFFUSION OF WATER IN POLYMERS -U-

AUTHOR-(05)-ARTAMONOVA, R.V., VINOGRADOVA, L.A., GARANINA, S.D., ZHERDEV, YU.V., KURULEV, A.YA.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970, 12(2), 336-42

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--INTERNAL STRESS, WATER, EPOXY RESIN, POLYETHYLENE, POLYAMINE, FLUID DIFFUSION/(U)ED5 EPOXY RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0319 STEP NO--UR/0459/70/012/002/0336/0242

CIRC ACCESSION NO--AP0111513

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111513

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF H SUB2 O AND H SUB2 O VAPOR ON INTERNAL STRESSES IN EPOXY RESIN ED 5 COATINGS HARDENED WITH POLYETHYLENE POLYAMINE AND MODIFIED WITH DEG-1 WERE STUDIED. SWELLING IN H SUB2 O REDUCED, AND EVEN CHANGED THE SING, OF INTERNAL STRESSES PRODUCED DURING THE THERMAL HARDENING AND SUBSEQUENT COOLING TO ROOM TEMP. THE INTERNAL STRESSES WERE INVERSELY PROPORTIONAL TO THE RELATIVE HUMIDITY. THE DIFFUSION COEFF. OF H SUB2 O (D), DETD. FROM KINETIC DATA (2.4 TIMES 10 PRIME NEGATIVE9 CM PRIME2-SEC) AGREED WITH D MEASURED BY THE SORPTION METHOD. AN EQUATION WAS PROPOSED FOR THE EVALUATION OF THE MAX. EXPTL. ERROR IN THE DETN. OF INTERNAL STRESSES BY THE CANTILEVER METHOD (A.T. SANZHAROVSKII, G. I. EPIFANOV, 1961) DUE TO A NONUNIVORM DISTRIBUTION OF H SUB2 O ALONG THE COATING.

UNCLASSIFIED

USSR G

UDC 678.067.5

GARANINA, S. D., ZHERDEV, YU. V., KOROLEV, A. YA., GORYUSHKIN, V. A., and AYRASIN, YA. S., All-Union Scientific Research Institute of Aviation Materials, Moscow, State Committee for Aviation Technology USSR

"Water Diffusion in Fiberglass Plastics"

Moscow, Kolloidnyy Zhurnal, Vol 32, No 4, Jul-Aug 70, pp 508-511

Abstract: The sorption method was used to study water diffusion in brand EDT-10-VO unidirectional winding epoxy fiberglass plastics in relation to the type of surface filler pretreatment, the direction of water molecule diffusion (along and across the fibers) and other factors. It was found that in the case of water penetration across the fibers the diffusion coefficient is lower than for solidified binder EDT-10, which indicates the absence of through pores in this direction. In the case of water penetration along the fibers the diffusion constant is almost two orders higher than across the fibers, which indicates the presence of a large number of microdefects in the plastic mainly in the boundary layer between the glass fiber and the polymer.

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GARANINA, S. D., et al., Kolloidnyy Zhurnal, Vol 32, No 4, Jul-Aug 70, pp 508-511

Boiling of specimens in water results in the formation of additional microdefects in this boundary layer, which results in a significant increase in the rate of water molecule diffusion. Pretreating the glass-fiber filler surface with chemically active substances (finishes) leads to a significant decrease in the water diffusion coefficient.

1/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--PREPARING HARDENED THIN FILMS FROM THERMOSETTING POLYMERS -U-

AUTHOR-(04)-GARANINA, S.D., GROMOVA, M.V., KOROLEV, A.YA., ZHERDEY, YU.V.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 61

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--THERMOSETTING MATERIAL, PLASTIC FILM, FLUOROCARBON RESIN, EPOXY RESIN, POLYESTER RESIN, PLASTIC FABRICATION/(U)FLUOROPLASTY FLUORINE PLASTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0581 STEP NO--UR/0191/70/000/003/0061/0061

CIRC ACCESSION NO--AP0119499

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIN FILMS FROM THERMOSETTING POLYMERS (I) WERE PREPD. BY PRESSING I SAMPELS IN A COLLAPSIBLE FTOROPLAST-4 CONTAINER. THE METHOD WAS SUITABLE FOR I WHICH DID NTO LIBERATE LARGE AMTS. OF VOLATILE COMPOS. DURING HARDENING (E.G., EPOXY RESINS, POLYESTERS, AND OTHERS).

UNCLASSIFIED

USSR

UDC 389.6.539.125.5.07:621.039.564.2

ARABEY, B. G., BOCHIN, V. P., GARAPOV, E. F., LOMAKIN, S. S., PETROV, V. I., SAMOYLOV, P. S., KHMYZOV, V. V.

"Standardization of Measurements of Neutron Flux Density in Nuclear Reactors"

Tr. Soyuz. NII Priborostr. [Works of Union Scientific Research Institute for Instrument Building], 1972, No 17, pp 3-8, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 7, 1972, Abstract No 7.32.1364, from the Resume).

Translation: Problems of standardization of means and methods of measurement of neutron field parameters in nuclear reactors in order to provide unity and correctness of measurement of these parameters are discussed. One means of standardization is the use of activation detectors. Recommendations are presented for the composition of standard sets of activation detectors. It is suggested that a "standard" source of thermal neutrons based on the F-1 graphite reactor be used to calibrate detectors used for continuous measurements in reactors. The parameters of the neutron field in the reactor (arbitrary flux density, epithermal parameter, neutron gas temperature) are measured using activation detectors with errors of 2.5-3%. The use of the source described can allow calibration of neutron detectors with an accuracy of 4-7%.

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USSR

UDC 612.766.1-06:612.826

GARASEV, T. S., Institute of Labor Hygiene and Occupational Diseases, Academy of Medical Sciences USSR, Moscow

"The Effect of the Adrenergic Substrate of the Brain Stem Reticular Formation on the Development of Fatigue in Response to Static Loads"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1973, pp 40-41

Abstract: The effects of different states of subcortical structures in fatigue development in response to static loads were studied on 10 individuals. States were varied by oral administration of 0.2 gm phenamine sulfate (an adrenomimetic) or aminazine (its antagonist) 50-60 minutes prior to work with dynamometers. EMG were recorded off hand and back muscles. Phenamine sulfate increased while aminazine reduced load endurance as compared to controls. "Rate" of EMG change (absolute value of EMG parameters divided by the length of time a force of particular intensity is applied) was lower in response to phenamine sulfate and greater in response to aminazine as compared to controls. Lack of significant differences in endurance of back and arm muscles indicates that the adrenergic substrate has similar effects on functions corticalized to different degrees. It is concluded that the adrenergic substrate of the brain stem reticular formation activates central nervous structures and retards development of fatigue.

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Acc. Nr. AP0053751 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code UR0032

112393y **Use of the adhesive Cyacrin in studies of stress by an optical polarization method.** Safarov, Yu. S.; Dubrovskii, B. E.; Garashchenko, V. I. (TsNII Tekhnol. Mashinostr., Moscow, USSR). *Zavod. Lab.* 1970, 36(1), 114-15 (Russ). Steel and poly(Me methacrylate) were bonded with Cyacrin (I) (by a method described by V. V. Korshak, 1967) and the bonded materials were tested by means of an optical polarization device. I failed to have any shrinkage and was optically inactive. The adhesive bond formed by I was twice as strong as that of a bond formed by an ED-5 resin adhesive (plasticized with 20 parts di-Bu phthalate and 15 parts polyethylenepolyamine). CKJR

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REEL/FRAME 19830814

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USSR

UDC: 543.42

GRIKIT, I. A., POLONIK, V. V., GARASHCHENKO, V. P.

"The Rate of Electrical Erosion of Metals in Spectral Light Sources as a Function of the Physical Properties of the Metals"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 17, No 4, Oct 72, pp 585-591

Abstract: Electrical erosion of pure metals was studied in standard spectral light sources. The IG-3 and GEU-1 spark oscillators were used. The opposing electrodes were made of spectral carbon. The test specimens had a volume of about 1 cc. Each specimen was subjected to spark erosion with 8-12 spots, and weight loss was determined by weighing on an analytical balance before and after treatment. Each experiment was repeated three times, giving a mean square error of 20% in determination of erosion rate. The rate of erosion was analyzed as a function of the thermophysical and mechanical properties of the metals, the structure of the outer electron shells of the isolated atoms, and the packing density of the atoms in the crystal lattice. An attempt is made to relate the rate of electrical erosion to the strength of the interatomic bond in the crystal lattice of the metals in terms of the principal physical and chemical characteristics of the metals

GRIKIT, I. A. et al., Zhurnal Prikladnoy Spektroskopii, Vol 17, No 4, Oct 72, pp 585-591

and the configurational model of the condensed state of matter. The pattern governing electrical erosion of metals is found to conform to the periodic law of the elements. This research confirms the specific capacity of electric discharges to selectively destroy metals and alloys, depending on the strength of their interatomic and chemical bonds.

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USSR

UDC 621.791.72:535.14

VELICHKO, O. A., GARASHCHUK, V. P., MORAVSKIY, V. E., Ye. O. Paton Electric Welding Institute

"Use of Pulsed Laser Welding for Mounting of Integral Solid Circuits Onto Printed Plates"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 1972, pp 50-51

Abstract: This work describes a study seeking methods and optimal modes for welding of the leads of integral solid circuits to the current-carrying lines on printed circuit plates using pulsed laser radiation. The strength of the welded joints produced was studied as a function of output energy, pulse length and focal length of the focusing lens. At low radiation energies (0.7-1 j), the leads do not melt and the contact is formed by soldering, with the layer of gold on the leads serving as solder. At moderate energies (1.2-1.6 j), the contact is formed by melting of the lead and printed circuit current-carrying material. Further increases in energy are counter-productive. Pulse length influences strength of the welded joint and other quality factors: welded joint quality stability increases with increasing pulse length up to 6 msec, the optimal length. The optimal focal length of the focusing lens was found to be 50 mm.

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UDC 621.791.72:535.14

USSR

VELICHKO, A. A., GARASHCHUK, V. P., and MORAVSKIY, V. E.

"Characteristics of Impulse Laser Welding Joints With Root Openings"

Kiev, Avtomaticheskaya svarka, No 4, Apr 72, pp 75-76

Abstract: A feasibility study was conducted at the Electric Welding Institute imeni Ye. O. Paton on impulse laser welding of lap joints with root openings. The latter's dimensions were varied by special spacer linings of specific thickness with slits. The complete conformity of the openings to the spacers was verified by metallographic examination. Experimental tests indicate that the dependence of the weld point's tensile strength on the opening decreases with the shape factor of penetration. The dependence of the lap weld strength on the root opening dimensions is also governed by the properties of both the crystallized weld pool and the base metal. Hence, the tensile strength and plasticity of the cast nugget metal that had formed in the root opening govern the weld point strength while both the fluidity and the surface tension factor of the melt largely determine the capacity of the metals (being welded) to form here a fairly large fusion zone. (2 illustrations, 1 bibliographic reference)

1/1

USSR UDC 621.791.72:535.14

VELICHKO, O. A., GARASHCHUK, V. P., and V. E. MORAVSKIY

"Laser Butt Welding of Dissimilar Metals"

Kiev, Avtomaticheskaya svarka, No 3, Mar 72, pp 71-73

Abstract: The Electric Welding Institute imeni Ye. O. Paton conducted studies on the application of solid-state lasers for welding most commonly used metals. The specimens were butt-welded under pulsed conditions with weld spot overlaps. The overlapping factor ranged from 50 to 75%, depending on the physical properties of the metals. Optimum conditions were selected to ensure maximum strength, appearance, and quality of the welds. Metallographic examinations of welds on similar and dissimilar refractory metals indicate extensive structural inhomogeneity and uneven microhardness as well as longitudinal cracks along the grain boundaries. There were occasional specimen failures (under residual stress) attributed to greater concentrations of interstitial impurities at the grain boundaries. The technique of moving the heat spot from the welding line towards one of the metals being welded provides optimum weld geometry. Data on the mechanical properties of laser-welded dissimilar metals are cited. (2 illustrations, 1 table)

1/1

USSR 6 UDC 621.791.72:535.14

GARASHCHUK, V. P.

"Method for Improving the Reproducibility of Welding on Laser Equipment"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 70, pp 69-70

Abstract: Different laser welding devices of the same general type should have reproducible welding modes, a requirement which is not often satisfied. Experiments have shown that on some devices of the K-3M and UL-2 types it is practically impossible to make the weld although the penetration is readily made; in others no difficulty is involved. These difficulties are especially true of ruby lasers, and they are obviously explained by the characteristics of the individual crystals. The purpose of this article is to investigate the action of the radiation on the metal for nonuniform as well as uniform light distribution. The experiments were done on the UL-2 laser using a ruby crystal 80 mm long. A resonator with spherical mirrors, having a radius of curvature of 1 m, was used to obtain homogeneous light distribution. By means of MF-4 microphotometer measurements, it was found that the illumination was more uniform in resonators with spherical mirrors than in those with plane mirrors. This is shown in a photograph reproduced in the article. Also given are microphotographs of laser radiation acting on nickel foil, with the action of both resonator types shown. It is concluded that spherical-mirror types provide the best reproducibility.
1/1

USSR

UDC 612.397.2.015.6

UDALOV, Yu. F., GARASHOV, B. N., and RAKHTADZE

"Value of Introducing Supplementary Vitamins Into the Diet of Persons Doing Emotionally Tense Work in Correcting Unbalanced Lipid Metabolism"

Moscow, Voprosy Pitaniya, No 1, 1973, pp 17-23

Abstract: Systematic administration of vitamins A (2 mg), C (100 mg), B_1 (3 mg), B_2 (3 mg), and PP (10 mg) for 10 to 25 days to 114 airplane pilots, some of whom showed signs of incipient atherosclerosis, had beneficial effects on various indexes of lipid and protein metabolism while improving the vitamin levels. In those with atherosclerosis, prophylactic vitaminization lowered the cholesterol level, increased the lecithin-cholesterol coefficient, lowered the content of beta lipoproteins, and increased the plasma proteins. The sense of well-being improved in both groups, especially those with atherosclerosis, and their work capacity increased. Some positive changes were also noted on the EKG taken at the end of vitaminization. There were no changes in lipid or protein metabolism among the 117 pilots not given supplementary vitamins.

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USSR UDC 616.13-004.6-02:616-008.939.15]-02:613.867

UDALOV, Yu. F., BAKHTADZE, N. N., and GARASHOV, B. N.

"Prevention of Disturbances of Lipid Metabolism in Individuals Working Under High Nervous Tension"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 2, 1973, pp 54-56

Abstract: Examination of 440 pilots revealed disturbances of lipid metabolism (hypercholesterolemia, abnormal lecithin: cholesterol ratio, etc.) in a substantial number of cases, especially in individuals age 32 to 35. The longer the flying time, the more pronounced the hypercholesterolemia. Temporary periods on the ground, e.g., while the men were in hospitals undergoing fitness examinations, did not result in swift normalization. Two vitamin complexes were tested as possible prophylactic agents. One consisting of vitamins A, B_1, B_2, PP, and C lowered the cholesterol level, content of beta lipoproteins, and improved the lecithin: cholesterol ratio in 56 pilots. The other complex consisting of vitamins A, E, B_1, B_2, PP, B_6, pantothenic acid, folic acid, B_{12}, C, and P was even more efficacious in 57 pilots, restoring normal lipid levels in 20 to 30 days, in a few cases several days earlier (day 15) or much later (day 60). Vitamin supplements plus the systematic alternation of work and rest will help to prevent disturbances of lipid metabolism in persons working under stress and thereby reduce the incidence of atherosclerosis.

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USSR

UDC 616.13-004.6-084

MOLCHANOV, N. S., UDALOV, Yu. F., and [redacted]

"A Special Vitamin Complex to Prevent Atherosclerosis in Fliers"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 7, 1972, pp 75-77

Abstract: Examination of a group of fliers showed a disturbance of lipid metabolism in 42.8% and the presence of atherosclerosis in 34.7%; 34.7% were normal in both respects. Administration of Aerovitan [a complex of 11 vitamins consisting of A, B_1, and B_2 (2 mg each), B_6 and pantothenic acid (10 mg each), PP (15 mg), E (20 mg), P (50 mg), C (100 mg), folic acid (0.5 mg), and B_{12} (25 µg)] for 30 days (dosage not given) to both the healthy fliers and to those with atherosclerosis markedly lowered the cholesterol and β-lipoprotein levels. In those with atherosclerosis, the cholesterol level dropped from 272±8 to 237±8 mg% and the β-lipoprotein level from 79.3±0.8 to 74.0±0.7%. The lecithin content increased in the healthy fliers, while in those with impaired lipid metabolism or with atherosclerosis it remained high. Rough calculations showed that the systematic prophylactic administration of Aerovitan reduces the probability of atherosclerosis developing by a factor of 2.7 in all persons examined, 1.2 in those with normal lipid metabolism, and 2.8 in those with disturbed lipid metabolism.

1/1

GARASHOV, B.N. (Lieut.-Col.) Medical Service

J-9605 X-1 D-2 DEBRIE

UDK 616.13-004.6-07/613.693
So: Military Medical Journal
Nov 1970

EARLY PROGNOSTIC SYMPTOMS OF ATHEROSCLEROSIS IN FLYING PERSONNEL

Yu. S. Udalov, Dr. of Medical Sc., Lieut.-Col., Med. Ser.
N. N. Bakhtadze, Lieut.-Col., Medical Service
B. N. Garashov, Lieut.-Col., Medical Service.

Diseases of the cardiovascular system -- primarily atherosclerosis -- are the most common cause for limiting the fitness status of flying personnel or for disqualifying some individuals entirely. Unfortunately, early diagnosis and prognosis of atherosclerosis present considerable difficulties. For this reason, the efforts of numerous researchers are aimed at identifying early symptoms of this disease as well as finding indicators which would show a predisposition to it. V. G. Kondrat'yev (1961), in comparing the state of lipoid and albumin exchange in healthy persons and those suffering from atherosclerosis, came to the conclusion that this information is of great diagnostic and prognostic importance. The value of these indicators was demonstrated by him in examining a group of flyers with a view to finding early indicators of atherosclerosis (1966).

Similar investigations were carried out in the clinic im. A. L. Myasnikov, by F. V. Karapetyan (1961), who subjected to a thorough clinical examination persons with high cholesterol levels. She came to the conclusion that an increased cholesterol level is a symptom of predisposition to atherosclerosis. I. S. Glaznov (1961) showed the unfavorable effect of an excessive consumption of animal fats in the pathogenesis of atherosclerosis. However, despite the large number of studies devoted to this question (D. G. Korin et al, 1957; V. P. Medvedev, 1957, and others), the matter cannot be regarded as settled. Moreover, neither in our domestic nor in foreign literature have we found any data as to the dynamics of the generally accepted indicators being used for the diagnosis of atherosclerosis among flying personnel. And yet such information would be of undoubted theoretical and practical value since it would enable us to evaluate the relative importance of individual symptoms not only for the purpose of early diagnosis but also for the prognosis of this disease.

These facts induced us to analyze the material dealing with the examination of a large number of flying personnel over a period of three years, in order to identify cases of cardiovascular disease — especially atherosclerosis. It should be emphasized that only those cases were taken into account where the flyers had been subjected to a systematic examination in hospital conditions, and where not a single case of prior cardiovascular history could be identified. All this seems to entitle us to assume that the group under study was suffering only from the initial stage of primary atherosclerosis. The age of the group ranged from 35 to 52 years. As a result of the tests, 32 pilots were held unfit for flying duty and 6 were placed in a category of "limited usefulness" because of atherosclerosis of the aorta and of the coronary artery of the heart.

Extensive information is available in literature on the state of metabolism and functional condition of the cardiovascular system in healthy persons and in atherosclerotic patients. (A. L. Myasnikov, 1960,1965; S. V. Il'yinskiy, 1960; S. M. Leytes, 1966; E. I. Sanelina et al, 1965; B. L. Gol'man, L. I. Kuznetsova, 1966, and others). However, the investigations were carried out without adequately taking into account the age

1/2 048 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--CORROSION RESISTANCE OF MOLYBDENUM COATINGS PREPARED BY CONTACT MELTING -U-

AUTHOR--UELSKIY, A.A., BICHUYA, A.L., GARASIM, YU.A., CHAYEVSKIY, M.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKH. MATER. 1970, 5(6), 704-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CORROSION RESISTANCE, MOLYBDENUM, METAL COATING, HYDROCHLORIC ACID, ALLOY DESIGNATION, NICKEL ALLOY, NITRIC ACID, SULFURIC ACID, TITANIUM STEEL, CHROMIUM NICKEL STEEL, LEAD ALLOY, BISMUTH ALLOY, EUTECTIC/(U)EI4378 NICKEL ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0623 STEP NO--UR/0369/70/005/006/0704/0708

CIRC ACCESSION NO--AP0105602

UNCLASSIFIED

2/2 048 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105602

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESISTANCE TO CORROSION AND FATIGUE OF A CR-NI-TI STEEL AND OF ALLOY EI 437B WAS IMPROVED BY A MO COATING APPLIED BY CONTACT MELTING. THE CORROSION RESISTANCE OF THE STEEL WAS TESTED IN 10PERCENT HCL AND IN 80PERCENT H SUB2 SO SUB4. TWO KINDS OF MO COATED SPECIMENS WERE TESTED, ONE OBTAINED BY DIFFUSION METHOD AND THE OTHER BY MELTING. IN THE CORROSIVE SOLN. THE SPECIMENS COATED WITH MO BY EITHER METHOD WAS MORE RESISTANT THAN UNPROTECTED STEEL. HOWEVER, THE DIFFUSION COATED SPECIMEN WAS MORE RESISTANT. FOR HIGH TEMPS. THE MO COATING APPLIED BY FUSION IS PREFERABLE. THE MO COATING ON ALLOY EI 437B HAD NO EFFECT ON THE CORROSION IN 30PERCENT HNO SUB3 AND ALMOST NONE ON THE HEAT RESISTANCE OF THE ALLOY AT 1050DEGREES. IT PROVED VERY RESISTANT IN PB-BI EUTECTIC AT 700DEGREES.

UNCLASSIFIED

USSR UDC 613.48:658.883.4/:615.28

GARAS'KO, YE. V., All-Union Scientific Research Institute of Labor Protection Ivanovo

"The Antibacterial Properties of a Special Fabric for Sanitary Work Clothing"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, Aug 73, pp 54-56

Abstract: Tests to determine the antibacterial activity of the fabric were conducted on a cotton fabric impregnated with 1.5% of a Cu salt of polyacrylic acid. The fabric, which is supplied under the classification TU 17-3014-69, was developed at the Moscow Textile Institute. It is being used as a material for antiseptic work clothing at the Ivanovo Dairy Combine. Samples of the fabric had a pronounced antibacterial action towards staphylococci and E.coli. The fabric retained its sterility and antibacterial activity after multiple launderings; 10-15% of the initial activity were retained after 60-70 launderings with the detergent Novost' or 50-60 launderings with the detergent OP-18. Use of the antiseptic fabric as a material for work clothing at the Ivanovo Dairy Combine reduced the bacterial contamination of the clothing by a factor of 15-20.

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USSR

UDC 669.28.054.2.546.21

GARAYEVA, A. A., MIKHAYLOV, S. M., PETUSHKOV, Ye. Ye., NAVALIKHIN, L. V., and TALANIN, Yu. N.

"Determination of Oxygen in Molybdenum Single Crystals"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 47-49

Translation: Activation analysis using fast neutrons was used to study the distribution of oxygen in molybdenum single crystals produced by crucibleless zone melting, allowing the change in concentration of impurities with increasing number of passes of the zone to be determined. The errors in measurement due to surface oxygen were determined. It was found that purification of the surface of the specimens can be performed by bombardment with electrons. Electrolytic etching at low oxygen contents is a less acceptable method of purification. 1 Figure; 4 Bibliographic References.

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1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ANALYSIS OF THE OPERATION OF A SULFURIC ACID ALKYLATION INSTALLATION -U-
AUTHOR-(04)-VSTAVSKAYA, L.I., POLYAKOVA, A.I., SOTSKOV, M.K., GARAYEVA, F.G.
COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. MOSCOW, 1970, (2), 25-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SULFURIC ACID, ALKYLATION, PROPANE, CHEMICAL PURITY, CHEMICAL PLANT EQUIPMENT, CHEMICAL ENGINEERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0646 STEP NO--UR/0318/70/000/002/0025/0027

CIRC ACCESSION NO--AP0119558
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 009

CIRC ACCESSION NO--AP0119558

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPROPANIZER WAS CONNECTED WITH THE TOP OF THE RECTIFYING BLOCK TO OBTAIN C SUB3 H SUB8 OF HIGH PURITY AND IMPROVE THE OPERATION OF THE DEBUTANIZER. THE OPTIMUM TEMP. (MAX. 12DEGREES) OF THE CONTACTOR WAS OBTAINED WITH AN ADDNL. NH SUB3 CONDENSER COOLER OF 450 M PRIME2. SUCH APP. WERE ADDED TO THE DEPROPANIZER AND DEBUTANIZER. FRESH AND SPENT H SUB2 SO SUB4 HAD 98 AND 85PERCENT CONCN., RESP. ISOBUTANE OLEFIN RATIOS IN THE INTAKE STOCK AND IN THE REACTION ZONE WERE 1.2-1.3:1 AND 5.0:1.0, RESP. A FLOW SHEET, PROPERTIES OF THE RAW MATERIALS AND PRODUCTS OBTAINED, AND OPERATION DATA ARE PRESENTED. FACILITY: KUIBYSHEV. NPZ, KUIBYSHEV, USSR.

UNCLASSIFIED

USSR

UDC 632.952:582.28

IBRAGIMOV, G. R., and GARAYEV, P. S., Azerbaidzhan Scientific Research Institute of Geography

"The Effect of Fungicides on the Wheat Stalk Mildew Infection"

Moscow, Khimiya v Sel'skom Khozyaistve, No 4, 1973, pp 45-46

Abstract: In laboratory experiments the most effective agent among those investigated (udoncor, benlat, preparation 868 and preparation 1290) was the preparation 868 (analat) used in double application and the preparation 1290 sprayed three times, 10 days apart. In field trials the preparation 868 again proved to be superior. Therefore, it has been recommended to spray wheat twice with this agent 10 days apart, any time between the 30 May and 10 July.

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UDC 639.304.5(262.54)

USSR

GARAYEV, R. A., and DOROSHEV, S. I., All-Union Institute of Marine Fishing and Oceanography

"Comparative Study of Morphological Characteristics of Atherina (Atherina mochon pontica nation caspia Eichwald) From the Aral Sea and Southeastern Part of the Caspian Sea"

Moscow, Biologicheskiye Nauki, No 9, 1971, pp 12-16

Abstract: Several hundred Caspian Atherinids were transplanted in 1956-1958 to the Aral Sea where they are now probably the most numerous fish species. A comparison of 14 morphological characters show that the original population in the southeastern part of the Caspian differs significantly from the Aral transplants in only 5: anterodorsal distance, eye diameter, snout length, number of vertebrae, and number of rays in the first spinal fin. The Aral Atherina has a smaller anterodorsal distance, eye diameter, and number of vertebrae but a larger number of rays in the fins. Some of the differences between the Aral and Caspian atherinids are attributed to the differences in temperature between the two lakes. The waters of the Aral are much colder in the winter.

1/1

UDC 547.26'118

USSR

PUDOVIK, A. N., GAREYEV, R. D., REMIZOV, A. B., AGANOV, A. V., YEVSTAF'YEV, G. I., and SHTIL'MAN, S. Ye., Kazan' State University Imeni V. I. Ul'yanov-Lenin

""Aldol" Type Addition Products of Diazoacetic Acid Esters With α-Ketophosphonates"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 559-567

Abstract: A mixture of diethoxyacetophosphonate and ethyldiazoacetate was kept two weeks in the dark at room temperature, poured into water, and decanted, the "aldol" type product -- diethoxy-α-hydroxy-α-carboethoxy-diazomethylethylphosphonate -- being isolated from the oily residue. A detailed structural analysis of the product has been carried out using PMR, IR and UV spectroscopical data.

1/1

USSR UDC 621.396.677.71

GARB, KH.L., KAZIMYANETS, V.N., FRIDBERG, P.SH.

"Radiation From A Narrow Transverse Slot On The Surface Of A Circular Cylinder"

Radiotekhnika i Elektronika, Moscow, Vol XVII, No 12, Dec 1972, pp 2504-2510

Abstract: The paper (which uses the international system of units) considers an endless circular cylinder with an ideally conducting surface of zero thickness in which there is a narrow ($\chi \sim 1$) transvere slot. A "dimensionless" voltage on it satisfies a known integral-differential equation which is solved by the method offered in a previous work by P.Sh. Fridberg [Dokl.AN SSSR, 1970, 194, 1; Radiotekhnika i Elektronika, 1971, 16, 9, 1578]. A matrix of the scattering of the system is found. Numerical results are presented for the case of excitation of a waveguide by a H_{11} wave. A problem concerning deviation of the sinusoidal distribution of voltage from the actual is considered. The authors thank S. Gurevich and S. Khoziosk for conducting the numerical calculations on the GE-400 machine. 4 fig. 11 ref. Received by editors, 6 December 1971.

1/1

USSR

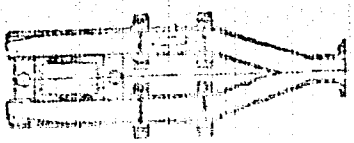
UDC: 621.372.852.5

FEL, S. S., GARB, Kh. L., TROFA, A. D.

"A Waveguide Coupler for Multimode Power of Frequency and Space Harmonics"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 12, Apr 72, Author's Certificate No 334612, Division H, filed 24 Jul 70, published 30 Mar 72, p 193

Translation: This Author's Certificate introduces a waveguide coupler for multimode power of frequency and space harmonics which consists of a section of rectangular multimode waveguide and two rectangular single-mode separator waveguides joined by a Y and connected to the wide wall of the multimode waveguide section by coupling elements. As a distinghishing feature of the patent, in order to provide transition attenuation which is identical for different wave modes, and to reduce overall dimensions, the coupling elements are made in the form of two slots cut through rotating cylindrical insets on the wide walls of the multimode waveguide which are located in a single cross section symmetrically relative to the longitudinal axis.



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1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PETROLEUM HYDROCARBONS FORMING COMPLEXES WITH UREA -U-

AUTHOR-(03)-SERGIYENKO, S.R., AIDOGOYEV, A., GARBALINSKIY, V.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK TURKM. SSR, SER. FIZ-TEKH., KHIM. GEOL. NAUK 1970, (3), 46-53

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--UREA, PETROLEUM PRODUCT, HYDROCARBON, ORGANIC COMPLEX COMPOUND, PETROLEUM DEPOSIT, GEOGRAPHIC LOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1729 STEP NO--UR/0202/70/000/003/0046/0053

CIRC ACCESSION NO--AP0138702

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0138702
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PARAFFIN CYCLOPARAFFIN CONTENTS IN DEAROMATIZED PETROLEUMS FROM THE EASTERN SHORE OF THE CASPIAN SEA (RESP., ZHETYBAI AND UZEN FROM THE MANGYSHLAK PENINSULA. KOTURTEPE AND BARSAGEL'NES FROM WESTERN TURKMEN, AND SHURTEPE AND KARAKTAI FROM BUKHARA) WERE SHOWN ON MICROFICHE. FACILITY: INST. KHIM., ASHKHABAD, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--SYNTHESES OF PYRIDINES. X. NEW METHOD FOR SYNTHESIZING SOME MERCAPTOPYRIDINES AND QUINOLINES -U-

AUTHOR-(02)-VOROPAYEVA, A.V., GARBAR, N.G.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (2), 184-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PYRIDINE, CHEMICAL SYNTHESIS, MERCAPTAN, QUINOLINE, ORGANIC NITRO COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1111 STEP NO--UR/0409/70/000/002/0184/0185

CIRC ACCESSION NO--AP0104509

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104509

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HALO COMPD. (0.2 MOLE), 0.4 MOLE NA SUB2 S SUB2 O SUB3, AND 70 ML 70PERCENT ALC. WAS HEATED 4 HR AT 120-30DEGREES IN AN AUTOCLAVE TO GIVE THE TITLE COMPDS. (COMPD., PERCENT YIELD, AND M.P. (ALC.) GIVEN): 2,METHYL,6,METHOXY,4,CHLOROQUINOLINE, 94, 287-9DEGREES; 2,METHYL,4,7,DICHLOROQUINOLINE, 94, 290-2DEGREES; 2,BROMOPYRIDINE, 78-85, 125DEGREES. NA SUB2 S SUB2 O SUB3, 5,NITRO,2,CHLOROPYRIDINE (0.2 MOLE EACH), AND 50 ML 70PERCENT ALC. WAS REFLUXED 3 HR TO GIVE 96PERCENT 5,NITRO,2,MERCAPTOPYRIDINE.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--SYNTHESES OF PYRIDINES. X. NEW METHOD FOR SYNTHESIZING SOME MERCAPTOPYRIDINES AND QUINOLINES -U-

AUTHOR-(02)-VOROPAYEVA, A.V., GARBAR, N.G.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (2), 184-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PYRIDINE, CHEMICAL SYNTHESIS, MERCAPTAN, QUINOLINE, ORGANIC NITRO COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1111 STEP NO--UR/0409/70/000/002/0184/0185

CIRC ACCESSION NO--AP0104509

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104509

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HALO COMPD. (0.2 MOLE), 0.4 MOLE NA SUB2 S SUB2 O SUB3, AND 70 ML 70PERCENT ALC. WAS HEATED 4 HR AT 120-30DEGREES IN AN AUTOCLAVE TO GIVE THE TITLE COMPOS. (COMPD., PERCENT YIELD, AND M.P. (ALC.) GIVEN): 2,METHYL,6,METHOXY,4,CHLOROQUINOLINE, 94, 287-9DEGREES; 2,METHYL,4,7,DICHLOROQUINOLINE, 94, 290-2DEGREES; 2,BROMOPYRIDINE, 78-85, 125DEGREES. NA SUB2 S SUB2 O SUB3, 5,NITRO,2,CHLOROPYRIDINE (0.2 MOLE EACH), AND 50 ML 70PERCENT ALC. WAS REFLUXED 3 HR TO GIVE 96PERCENT 5,NITRO,2,MERCAPTOPYRIDINE.

USSR UDC 621.382.2

LUK'YANCHIKOVA, N. B., GARBAR, N. P., SHEYNKMAN, M. K., Institute of Semiconductors of the Ukrainian SSR Academy of Sciences, Kiev

"Excess Currents and Noise of Forward-Biased GaP Diodes"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 5, 1972, pp 869-877

Abstract: Joint studies were made of the excess currents and excess noise in GaP light diodes with forward-bias in the dark and with illumination. The excess currents observed in the initial sections of the volt-ampere characteristics of the GaP diodes which are frequently characterized by a complex i(u) function, are related to the tunnel-recombination surmounting of the p-n-junction potential barrier by the carriers. The tunnel-recombination currents do not run through the entire area of the p-n-junction but only through the basic regions the thicknesses of which are much less than its mean thickness and the total area is 1-2 orders less than the total area of the junction. The current noise observed in the excess current region is also excess, it has a spectrum of the 1/f type and is generated in the space charge region of the p-n-junction while the excess forward current passes through it. In a region of higher U when the primary contribution to the total diode current is made by the thermal emission current, the observed excess noise 1/f is still caused 1/2

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UDC 621.382.2

LUK'YANCHIKOVA, N. B., et al., Vizika i Tekhnika Poluprovodnikov, Vol 6, No 5, 1972, pp 869-877

by the presence of tunneling of a small part of the carriers through the p-n-junction. The presence of a plateau in the $S_i(I)$-functions can arise from the fact that the investigated noise is generated only in the "special" regions of the p-n-junction or by the existence of a defined relation between the tunnel recombination and the TE current mechanisms in the investigated diodes. The effect of light on the junction reduces to a reduction in height of the potential barrier. The excess current mechanism and the mechanism of the excess noise accompanying this current do not change under the effect of light.

Acc. Nr: AP0034106 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code: UR0078

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71209x Determination of the composition and solubility of zirconium and hafnium phosphates by a radiochemical method. Garbauskas, G.; Shamaev, V. I. (USSR). *Zh. Neorg. Khim.* 1970, 15(1), 33-7 (Russ). Compn. and soly. of Zr and Hf phosphates was studied in a wide range of H_2SO_4 concn. in the presence or without 0.1 *M* citric acid (I). Compn. of Zr and Hf phosphates changed with H_2SO_4 concn. Soly. of Zr and Hf in various H_2SO_4 concns. are given graphically. The values of *X* coeff. (X = *m* of $[PO_4]^{3-}$ in soln./*m* of Zr^{4+} in ppt; *m* = no. of moles) for changing H_2SO_4 concn. with and without 0.1 *M* I are tabulated. HMJR

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REEL/FRAME

19710749

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SELECTION OF THE COMPOSITION AND STRUCTURE OF WEAR RESISTANT WHITE CAST IRON CASTINGS -U-

AUTHOR-(02)-GARBER, M.YE., TSYPIN, I.I.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, 2, 2-6

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CAST IRON, WEAR RESISTANT FERROUS ALLOY, EUTECTIC, CARBIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1742 STEP NO--UR/0128/70/002/000/0002/0006

CIRC ACCESSION NO--AP0118720

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118720

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TYPE AND HARDNESS OF CARBIDES WAS VARIED BY ALLOYING THE BASIC CAST IRON (CONTG. 3PERCENT C AND 1.5PERCENT MO) WITH 1.26-31.1 WT. PERCENT CR; THE AMT. OF CARBIDES WAS VARIED BY CHANGING THE CONCN. OF C (1.53-4.2PERCENT), IN THE CAST IRON CONTG. 12PERCENT CR AND 1.5PERCENT MO, AND THE SIZE OF THE CARBIDE PARTICLES WAS VARIED BY CHANGING THE COOLING RATE DURING THE CRYSTN. OF FLAT CASTINGS (10-100 MM THICK) IN SAND AND METALLIC MOLDS. ALL SPECIMENS WERE POLISHED AND THE MICROHARDNESS WAS USED AS AN INDICATOR OF WEAR RESISTANCE. WITH INCREASING CARBIDE HARDNESS THE WEAR RESISTANCE INCREASED AND REACHED MAX. AT 12-24PERCENT CR WHEN THE CARBIDE TYPE WAS M SUB7 C SUB3. THE WEAR RESISTANCE OF CAST IRON WITH 29PERCENT CR DECREASED OWING TO THE PRESENCE OF COARSE AND BRITTLE NEEDLES OF TRANSEUTECTOIDAL CARBIDES. WITH AN INCREASING AMT. OF CARBIDE (C CONCN. INCREASED TO 3.25PERCENT) THE WEAR RESISTANCE OF CAST IRON CONTG. 12-14PERCENT CR INCREASED LINEARLY. A FURTHER INCREASE OF C CONCN. RESULTED IN THE APPEARANCE OF TRANSEUTECTOIDAL CARBIDES M SUB3 C, WHICH WERE LESS STABLE. INCREASING THE SIZE OF CARBIDE PARTICLES DECREASED THE WEAR RESISTANCE. FROM THE POINT OF WEAR RESISTANCE, THE OPTIMUM CR CONCN. IN CAST IRON IS 12-18PERCENT AND C CONCN. SHOULD BE SLIGHTLY BELOW EUTECTIC CONCN. I.E. AT CR 12PERCENT, C 3.5-3.6PERCENT AND LOWER AT HIGHER CR CONCNS. THE USE OF METALLIC MOLDS SHARPLY INCREASED THE WEAR RESISTANCE OF CASTINGS WITH THICK WALLS (GREATER THAN 50 MM), AS COMPARED TO SAND MOLDS.

UNCLASSIFIED

USSR UDC (546.831'183+546.832'183):541.6:541.8:543.52

GARBAUSKAS, G. K., and SHAMAYEV, V. I.

"Determination of Composition and Solubility of Phosphates of Zirconium and Hafnium by Radiochemistry"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 1, 1970, pp 33-37

Abstract: A study was made of the composition of phosphate precipitates as a function of an equilibrium concentration of H_2SO_4 in solution. Experiments to determine the ratio of phosphorus to hafnium in the hafnium phosphate molecule were conducted both with pure sulfate solution and in the presence of a complexating agent, 0.1 mole citric acid. The study was conducted with labelled hafnium, where the phosphate ion was taken in substoichiometric amount with respect to Hf(IV). It was assumed that all the substoichiometric amount of phosphate reacts with labelled hafnium and enters into the precipitate. The amount of Hf(IV) in the precipitate was calculated from the formula (in moles):

$$g_{\underset{oc}{Hf(IV)}} = m_{Hf(IV)} (1 - alpha)$$

where $m_{Hf(IV)}$ = initial amount of hafnium in solution (moles); alpha = A_{fin}/A_{ini},

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GARBAUSKAS, G, K., and SHAMAYEV, V. I., Zhurnal Neorganicheskoy Khimii, Vol 15, No 1, 1970, pp 33-37

A_{fin} = activity of filtrate after separation from precipitate (pulses/minute); A_{ini} = initial activity of solution (pulses/min). It was established that the composition of phosphates of zirconium and hafnium vary with change in H_2SO_4 concentration in solution, and the solubility of zirconium phosphate is greater than that of hafnium phosphate in H_2SO_4 solutions of different concentrations.

Acc. Nr: AP0049806 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: 4R0188

G

101590j **Interaction of alkoxysilanes with Aerosil.** Gusein-Zade, A. F.; Nudel'man, Z. N.; Garber, A. M.; Galil-Ogly, F. A.; Rostovtseva, E. E.; Malyshev, A. I. (Nauch.-Issled. Inst. Rezin. Prom., Moscow, USSR). *Kauch. Rezina* 1970, 29(1), 6-8 (Russ). The reaction of $Me_2Si(OMe)_2$ (I) with Aerosil (II) was studied by ir spectroscopy at 2600-3000 cm^{-1}. The reaction of I with II involved condensation with SiOH groups of II to give MeOH (as an intermediate by-product), which further condensed with SiOH groups to give SiOMe groups. I inhibited the crosslinking of rubber; however, due to the formation of SiOMe groups on the surface of II, some crosslinking did occur. CKJR

9C.

REEL/FRAME
19801728

USSR UDC 669.13.131.2

KONTOROVICH, I. Ye. (deceased), ROZHKOVA, Ye. V., GARBER, M. Ye., and TSYPIN, I. I., All-Union Scientific Research, Planning, and Technological Institute of Coal Industry

"On the Optimum Content of Carbon and Chromium in Wear-Resistant White Irons"

Moscow, Metallovedeniye, No 5, 1971, pp 45-46

Abstract: Effects of carbon (1.5-4.0%) and chromium (12.0-30.0%) on the wear resistance and strength of white irons are investigated and the results discussed. The wear resistance and strength of white irons are more affected by carbon than by chromium. White irons with a carbon content somewhat higher than the eutectic show the highest wear resistance, but their use is limited due to insufficient strength properties. These irons can be recommended for working under wear conditions without notable impact loadings. For parts of machines operating under conditions where a strength of ~90 kg/mm^2 is required, white irons with a carbon content of no more than 2.8% and 12-18% Cr should be used. Three figures, five bibliographic references.

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USSR UDC 621.382.002

GARBER, R.I., GNAP, A.K., KOZLOV, V.F., PISTRYAK, V.M., FOREL', YA.M., FEDORENKO, A.I.

"Mass Spectrometric Determination Of Impurity Profile Of Boron In Ion-Doped Single Crystals Of Silicon"

V sb. Radiats. fiz. nemet.kristallov. (Radiations Physics Of Nonmetallic Crystals--Collection Of Works), Vol 3, Part 2, Kiev, "Nauk.dumka," 1971, pp 143-148 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B438)

Translation: The impurity profile of atoms of boron implanted in monocrystalline silicon with various orientations was determined by the method of secondary ion-ionic emission. The scheme of the mass spectrometic arrangement is presented, as well as typical impurity profiles of barium in Si specimens. 3 ill. 7 ref. I.M.

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USSR UDC 621.382.002

GARBER, R.I., GVERDTSITELI, I.G., GNAP, A.K., GULDAMASHVILI, A.I., MODLIN, A.A., FEDORENKO, A.I.

"Study Of Radiation Damage Of Single Crystals Of Silicon After Doping With Boron Ions With An Energy Up To 100 Kev"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics Of Nonmetallic Crystals--Collection Of Works), Vol. 3, Part 2, Kiev, "Nauk.dumka," 1971, pp 133-138 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B25)

Translation: The extent of radiation damage in the depths of a doping layer was determined by the method of layered atomization [raspyleniye] by bombardment by a beam of Ag^+ ions with an energy of 1 kev and a current density of 10 microamp. cm^{-2} with subsequent study of the pattern of the deposits on glass collectors with a central 2-mm aperture for transmission of the beam of ions. 3 ill. 7 ref. I.M.

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PISTRYAK, V. M., GNAP, A. K., KOZLOV, V. F., GARBER, R. I., FEDORENKO, A. I., FOGEL', Ya. M., Physico-Technical Institute, Academy of Sciences, Ukr SSSR, Kar'kov.

"Distribution Profile of 30 and 100 KEV Boron Ions Intersticed in Silicon"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 4, April 1970, pp 1281-1283

Abstract: Monocrystalline specimens of n-type silicon with (111) and (110) crystallographic orientations were investigated after alloying with ions of boron with energies of 30 and 100 kev in an accelerating unit with mass separations. Determination of the distribution profile of the boron ions intersticed in silicon during ion alloying was performed by a method of secondary ion-ionic emission on a mass--spectrometric device. Laminar sputtering of the specimens of ion-alloyed silicon (speed of sputtering $\sim$ 0.0015 micron/sec) was produced by a beam of primary ions with energies of 14 kev and a current density of 0.1 ma/cm^2. The secondary ions B^+_{11} isolated by the magnetic analyzer were registered by an ion counter. The distribution profiles have satisfactorily narrow maxima embedded at depths of 0.3 micron (30 kev) and 0.43 micron (100 kev) for the (111) plane, and 0.33 micron (30 kev) and 0.49 micron (100 kev) for the (110) plane. The difference in the depths of the maxima of the distribution profile of the impurity at

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PISTRYAK, V. M., et al, Fizika Tverdogo Tela, Vol 12, No 4, April 1970, pp 1281-1283

the same energies of the incident ions, but different crystallographic orientations of the targets, is explained by the better conditions of channeling of the incident particles in crystals with (111) orientations as compared with those of (111) orientations. The authors thank I. G. Gverdtsitel and A. I. Guldmashvil for the specimens submitted and for useful discussions. 1 fig. 6 ref. Received by editors 19 December 1969.

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1/3 038 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--RADIATIVE DISPERSAL AND DAMAGE TO SOME METALS IN RADIATION FIELD OF NUCLEAR REACTOR PART I. DISPERSAL BY FAST NEUTRONS -U-
AUTHOR-(04)-GARBER, R.I., KARASEV, V.S., KOLYADA, V.M., FEDORENKO, A.I.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. (USSR): 28: 4006, MAY 1970

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SINGLE CRYSTAL, ENERGY SPECTRUM, NUCLEAR REACTOR, RADIATION DAMAGE, NEUTRON FLUX, IRRADIATION, POLYCRYSTAL, METAL, PARTICLE ACCELERATOR TARGET

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0554 STEP NO--UR/0089/70/000/028/0400/0406

CIRC ACCESSION NO--AP0137642
UNCLASSIFIED

2/3 038 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137642

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF A STUDY OF DEPENDENCE OF A DISPERSAL INTENSITY FOR SINGLE AND POLYCRYSTAL TARGETS ON A REACTOR IRRADIATION DOSE WITH NEUTRON FLUX 2.10 PRIME12 NCM NEGATIVE PRIME2 TIMES SEC NEGATIVE PRIME1. IT IS FOUND THAT THE YIELD OF DISPERSED PARTICLES FROM SINGLE CRYSTALS IS HIGHER THAN IN THE CASE OF POLYCRYSTALS. FOR SINGLE CRYSTAL AS WELL AS FOR POLYCRYSTAL TARGETS A PERIODIC DEPENDENCE ON DISPERSAL YIELD ON ATOMIC NUMBER OF THE TARGET ELEMENT OCCURS. WHILE THE IRRADIATION DOSE INCREASES, THE DISPERSAL INTENSITY IN THE CASE OF SINGLE CRYSTALS DECREASES BUT REMAINS HIGHER THAN THE DISPERSAL INTENSITY OF POLYCRYSTALS. IT IS SHOWN THAT PARTICLES FROM SINGLE CRYSTAL SURFACE ARE EMITTED MAINLY IN THE DIRECTIONS OF DENSELY PACKED ROWS OF ATOMS, WHILE FROM POLYCRYSTALS EMISSION IS ISOTROPIC. INCREASE OF THE IRRADIATION DOSE IS ACCOMPANIED BY LESSENING ANISTROPY IN THE PARTICLE YIELD FROM SINGLE CRYSTALS, LOWERING THEIR ENERGIES AND BROADENING THEIR ENERGY SPECTRUM. ENERGY SPECTRA OF PARTICLES FROM SINGLE AND POLYCRYSTALS ARE MEASURED. INFLUENCE OF ELECTRONIC SHELLS STRUCTURE ON THE YIELD OF DISPERSED PARTICLES FROM TARGETS AND THEIR ENERGY SPECTRA, IS OBSERVED AND INVESTIGATED. ATOMS OF ELEMENTS BELONGING TO THE FIRST SUBGROUP OF ANY PERIOD ARE EMITTED WITH HIGHER VELOCITIES THAN ATOMS OF ELEMENTS OF THE SECOND SUBGROUP BELONGING TO THE SAME PERIOD. THE MAXIMUM VALUE OF ENERGY (UP TO 650 EV) IS OBSERVED IN THE CASE OF ATOMS OF ELEMENTS WITH VERY WEAK DISPERSION PROPERTIES.

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UNCLASSIFIED PROCESSING DATE--27NOV70

3/3 038

CIRC ACCESSION NO--AP0137642

ABSTRACT/EXTRACT--RESULTS OF THESE INVESTIGATIONS ARE INTERPRETED BY MEANS OF MECHANISMS OF FOCUSING COLLISIONS AND CANALIZING DISPLACED ATOMS IN THE CRYSTAL LATTICE OF TARGETS UNDER NEUTRON IRRADIATION IN THE REACTOR.

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1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--RADIATIVE DISPERSAL AND DAMAGE TO SOME METALS IN RADIATION FIELD OF NUCLEAR REACTOR. PART II. DISPERSAL BY FISSION FRAGMENTS OF PRIME235 U

AUTHOR-(04)-GARBER, R.I., KARASEV, V.S., KOLYADA, V.M., FEDORENKO, A.I.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. (USSR); 28: 406-10, MAY 1970

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--METAL, URANIUM ISOTOPE, ATOM, SINGLE CRYSTAL, POLYCRYSTAL, NEUTRON FLUX, ANGULAR DISTRIBUTION, NUCLEAR REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0556 STEP NO--UR/0089/70/000/028/0406/0410

CIRC ACCESSION NO--AP0137643

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137643

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF A STUDY ARE DESCRIBED OF DISPERSAL OF ATOMS EMITTED FROM SURFACES OF SINGLE AND POLYCRYSTAL TARGETS OF 13 PURE UNFISSIONABLE METALS UNDER IRRADIATION FROM THE BACK SIDE BY FISSION FRAGMENTS OF PRIME235 U IN CONTACT WITH TARGETS AND NEUTRON FLUX IN THE NUCLEAR REACTOR. THE DISPERSAL YIELD AND ANGULAR DISTRIBUTION OF DISPERSED PARTICLES HAVE BEEN INVESTIGATED BY USE OF ACTIVE DEPOSITS OF DISPERSED ATOMS ON COLLECTORS, PLACED DURING IRRADIATION NEAR THE TARGET SURFACE. A PERIODIC DEPENDENCE OF THE DISPERSAL YIELD ON THE ATOMIC NUMBER OF TARGETS HAS BEEN OBSERVED. IT HAS BEEN SHOWN THAT COMBINED IRRADIATION OF POLYCRYSTAL TARGETS BY FISSION FRAGMENTS AND NEUTRONS FROM THE REACTOR DOES NOT RESULT IN SIGNIFICANT INCREASE OF THE DISPERSAL YIELD AS COMPARED WITH IRRADIATION BY NEUTRONS ONLY. IN THE CASE OF SINGLE CRYSTALS, COMBINED IRRADIATION RESULTS IN AN INCREASE OF THE DISPERSAL YIELD. FOR VARIOUS TARGETS, THE SINGLE CRYSTAL DISPERSAL YIELD IS HIGHER THAN IN THE CASE OF POLYCRYSTALS. AUTORADIOGRAPHICAL REGISTRATION OF ACTIVE DEPOSITS OBTAINED AS A RESULT OF DISPERSAL OF SINGLE CRYSTALS SHOW DISCRETE SPOTS WITH SYMMETRY CORRESPONDING TO THE ORIENTATION OF THE DISPERSION CRYSTAL SIDE. AS TO POLYCRYSTALS, THE DENSITY DISTRIBUTION OF PARTICLES ALONG COLLECTORS FOLLOWS THE COSINE LAW. RESULTS OF THE INVESTIGATION MAKE IT POSSIBLE TO ACCEPT THE HYPOTHESIS OF MECHANICAL, AND NOT THERMAL, PROCESS OF DISPERSAL OF ATOMS FROM THE TARGET SURFACES UNDER IRRADIATION BY FISSION FRAGMENTS.

UNCLASSIFIED

USSR G UDC: 669.017:539.16.04

GARBER, R. I., KARASEV, V. S., KOLYADA, V. M., and FEDORENKO, A. I.

"Radiation Erosion and Damage to Certain Metals in the Field of Radiation of a Nuclear Reactor. Part I. Erosion by Fast Neutrons"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 400-406

Abstract: The authors studied the dependence of the intensity of erosion of atoms of certain metals on the summary dose of reactor radiation. The targets studied included single- and polycrystals of twenty-five elements: Be, B, Al, Si, Ti, Cr, Fe, Co, Ni, Cu, Zn, Ge, Zr, Nb, Mo, Ag, Cd, Sb, Ta, W, Au, Pb, Bi, Th, and U. It was established that the intensity of particle erosion from single crystals is higher than from polycrystals by 1.5-2.5 times. There is also a periodic variation of intensity of particle emission with atomic number of the element. The maximum intensity was observed for copper, zinc, silver, and gold. The intensity of erosion of single crystals decreases with increasing summary dose. A comparison of the angular distributions of atoms knocked from the surface of single- and polycrystalline targets by fast neutrons showed that the atoms leave the surface of the polycrystals isotropically, whereas they leave the surfaces of singlecrystals primarily in the directions of the densely packed rows of atoms in the crystal.

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GARBER, R. I., et al., Atomnaya Energiya, Vol 28, No 5, May 70, pp 400-406

As the integral neutron dose is increased to 10^{15} - 10^{16} n·cm^{-2}, the angular distribution from singlecrystals no longer shows preferential directions.

USSR G UDC: 669.017:539.16.04

GARBER, R. I., KARASEV, V. S., KOLYADA, V. M., and FEDORENKO, A. I.

"Radiation Erosion and Damage to Certain Metals in the Field of Radiation of a Nuclear Reactor. Part II. Erosion with U^{235} Fission Fragments and Neutrons From a Reactor"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 406-410

Abstract: The erosion of atoms from the surface of single- and polycrystalline targets of several pure nonfissionable metals was studied as they were bombarded on the back side with U^{235} fission fragments (in contact with the target) and the flux of neutrons in a nuclear reactor. Since the path length of fragments was significantly less than the thickness of the targets, the removal of material from the targets resulted from "mechanical", not thermal processes, which is also confirmed by the anisotropy in the distribution of particles eroded from the single-crystals in sediment on the collectors. In polycrystalline targets, scattering and blocking of focusons and crowdions, and channeling of displaced atoms occur due to the intercrystalline boundaries and distortions of the lattice in the crystallites. Some of the atoms do not reach the surface of the collector. The total yield of eroded particles from polycrystals, measured from sediment on collectors, is 1.6 times less than the yield of particles from singlecrystals of the same elements. The distribution of particles on the collector is isotropic in the case of polycrystals, but not in the case of singlecrystals.
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Acc. Nr: AP0052449 Abstracting Service: GEOPHYSICAL ABST. 5/10 Ref. Code: UR0455

91739y Extractive distillation. Barboi, V. M.; Garber, Yu. N.; Fel'dman, I. N. (Kiev. Tekhnol. Inst. Legk. Prom., Kiev, USSR). *Teor. Osn. Khim. Tekhnol.* 1970, 4(1), 115–18 (Russ). The effects on distillate quality by changes in temp., amt. of reflux, concn. of extractive solvent, and component ratio in binary mixts. to be sepd. were evaluated quant. from an equation derived by replacing the reflux ratio in distn. calcns. by the theoretically effective one for extractive distn. of a mixt. introduced in the vapor state, $dx_{3w}/dt = [(1 - x_{3w})\alpha_{23}/(\alpha_{23} - 1)][B_2/(t + C_2)^2] + [x_{3w}/(\alpha_{23} - 1)][B_3/(t + C_3)^2]$, and a special case of it for equimolar mixts. A, B, and C are the consts. of Antoine equation, x_{3w} is the reboiler solvent concn., t is the reboiler temp., and α_{23} the coeff. of relative volatility of the difficultly volatile component and solvent. Lucile S. Davison

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19821083